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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention contains the metal by which it is generated in the refinement process of molten metal, especially relates to the processing unit of the slag of melting and a semi molten state.
[0002]
[Description of the Prior Art]The slag generated in the refinement process of molten metal is various by the method of refinement, and its slag composition. Conventionally, cooling coagulation crushing treatment of this slag was carried out, judgment adjustment was carried out and it was supplied as a roadbed material and an object for reclamation. For example, pan tilting discharge of the slag containing the metal in which the processing process of steelmaking slag was discharged by converter **** from the converter is first carried out at a pit or a yard. being compulsorily cooled by watering etc. here -- after that -- being certain -- time neglect is carried out and slag is cooled naturally to a predetermined temperature.
[0003]Next, the slag which carried out cooling coagulation at the pit and the yard is excavated in a moderate size by heavy industrial machine or bulldozer, and is carried in to the yard of every exception by a track etc. The predetermined period was neglected out in the fields also here, as for slag, grain refining was carried out, subsequently to the processing plant of a culmination it was carried in by spontaneous disintegration, crushing judgment was further carried out by the crusher etc., and the part was adjusted to size suitable for a roadbed material and reclamation in the meantime.
[0004]A process of operation is complicated, it cooling-solidified, and excavated and still more nearly most time to crushing judgment was required, and in order that disposal equipment might form an extensive kind of machinery, processing of the above conventional slag took a remarkable area, and the cost had become a problem by it. Radical reexamination of down

stream processing has recently come to be demanded by an improvement of the work environment by the dust at the time of this slug disposing, etc., restrictions of a disposal plant, etc. As this known art, the metal in slag, separation of slag, and prior processing of collapse are performed to JP,3-202406,A, for example in the stage in early stages of processing, all the slag containing a metal is discharged, and the method and device which bundle up half-melting thru/or the solidified slag and are processed continuously are indicated.

[0005]However, these Prior arts were not yet enough in respect of the efficiency of slug disposing, and an environmental problem, efficient-ization of processing was attained further, slag was used more effectively, and development of the slug-disposing art of reducing a cleanup cost further was desired.

[0006]

[Problem(s) to be Solved by the Invention]It aims at promoting grain-refining coagulation by this invention's solving the problem of a Prior art, and discharging the slag generated at the time of refinement of molten metal to a pit or a yard, and stirring it in the state of the immediately after melting thru/or half-melting. That is, it becomes possible about solidifying without the stirring force's fully being able to give stirring movement, even if not so large, and making increase of the cooling area of slag simple, attaining it by this stirring, in the stage of liquefied slag, usual, sticking mutually at the time of the coagulation of slag, and becoming a large mass. the slag discharged when mobility was too good as description of this slag -- **** -- it keeps, and at the time of stirring, it solidifies and the efficiency of pellet-izing worsens. Also when the mobility of slag is too bad conversely, the efficiency of pellet-izing worsens. The slug-disposing device which it is reversed or stirs [mixed] slag efficiently enough is provided to the slag which is separated from such usual slag description.

[0007]

[Means for Solving the Problem]A place which this invention solves the aforementioned technical problem and is made into the gist, In a processing unit of slag by which it is generated in a refinement process of molten metal, slag of melting or a semi molten state is discharged to a pit or a yard, and it is immediately after that a tiller which it is reversed or mixes [stirring] this slag, and is in a processing unit of slag, wherein this tiller has a roller.

[0008]

[Function]An operation of this invention is explained below. In order to fully stir slag, fall is repeated after that, rotation movement is given to the whole slag as a result, it pushes on slag by melting or a semi molten state, and it moves to the front or the upper part, rising and rotating [give,] a pressure, and it is crushed [this invention is mixing-stirred and].

[0009]for this reason -- an always new slag surface winds exposing into the top atmosphere -- ****** -- it becomes things. Cooling cooling in a slag surface will be promoted by this tilling movement, quite big heat stress will occur in slag by it, and spontaneous disintegration of the

slag will be carried out with this stress. The aggressiveness pressure of tilling movement and rotational movement which were mentioned above serve as driving force which crushes slag. Fragmentation coagulation will be carried out without sticking the slag of each other by which tilling was carried out, and becoming a large mass by these.

[0010]By the slug-disposing method of this invention, it is obtained by a method with simple slag of the subdivided fine grain, and the slug-disposing process which had required the conventional long time is simple, thru/or it is omitted and the particle size distribution after processing of slag and a presentation are stabilized. The processing unit of this invention forms the roller for tilling in front faces, such as the usual bulldozer currently used at an existing pit or yard.

[0011]While it rotates and slag rises with this roller, what is necessary is just enough to be able to go to the front or the upper part and for what is necessary be just to crush slag with a roller etc. Although it generally depends for the discharge thickness of slag on the hardness of slag, and a presentation, in usual, this thickness is around about 300 mm. However, as description of slag, when mobility is extremely good, slag thickness is set to 100 mm or less, and when the mobility of slag is bad, slag thickness is set to not less than 600 mm. In order to stir slag in these cases, it pushes to slag, and a pressure is given, for example, the method of giving torque with a roller with a projection becomes advantageous. If it requires, it is making into main requirements for this invention to be a device which carries out load of the stress which moves upward according to a projection and curved surface of a roller with a projection in parallel with a flat surface vertical to a slag thickness direction to a slag surface, and gives and carries out tilling of the rotational movement.

[0012]In order to promote rotational movement of the slag by a rotary roller more preferably, a spiral guide and/or a grooved guide are attached to this, and climax rotation of slag is promoted by this. It is a device which changes variously, and especially the presentation of slag can apply to the slag in the case of being extremely bad when extremely good in respect of mobility.

[0013]

[Example]This invention is further explained in full detail based on an example. Drawing 1 is a schematic diagram of steelmaking slag down stream processing of this invention. The slag discharged from a converter is poured into the converter pan 1, and is conveyed by converter **** 5 at a slug-disposing place. When the slag surface pan in the car will be stuck by KAWA before discharge of slag, epidermis pitting 2 is performed as work make this easy to break and discharge.

[0014]Then, tilling processing of the discharged slag 3 is carried out with the tiller 4, and it carries in to a processing plant eventually, and is the last process of carrying out grain refining here. The mimetic diagram of a tilling process is shown in drawing 2. Converter slag is

discharged to a pit and a yard from the converter pan 1, will be in the state of the discharge slag 3, and will be developed at a pit or a yard. In this figure, slag is discharged at right angles to the direction of movement of slug ****. In the tiller 4 and this example which have a roller with a projection from both ends ahead to the discharge direction and a perpendicular direction in drawing 2, tilling of the direction 6 of tilling of the discharged slag 3 will be carried out by the reciprocation moving by two bulldozer.

[0015]The slag which tilling finished will be gradually moved to watering cooling place side 7. Next, it explains still in detail about the tiller of this invention. Drawing 3 is a schematic diagram of the example of the tiller of this invention. The tiller 4 which has the roller 8 is the usual bulldozer in this example. The movable direction of the roller 8 has Ain Gring 13 relevant to the direction of tilling, and this can be adjusted with an arm free.

[0016]By drawing 4's showing another example, and being a combination method of a roller and a tilling board, for example, having a roller of drawing 3 back in this example, and combining the tilling board 10 like drawing 4 ahead, The function of a tilling board is further added with a roller, and grant also of screw motion is enabled at slag. In this example, lifting, Chill Tyng, and Ain Gring 11 are movable, and can adjust adjustment of the tilling board 10. In this example, a roller and the tilling effect according to a tilling board further will contribute, and subdivision of slag will promote further.

[0017]The result of having actually carried out mixed stirring of the converter slag according to the above example, and having screened the slag which carried out distributed coagulation is shown in drawing 5. As for it, according to drawing 5, this invention turns out that a mesh interruption fault index (more than particle diameter of 250 mm) improves extremely as compared with a conventional system. Even if it compares with the improvement art of the patent application before basing on this invention person who furthermore shows as a comparative example, being further improved from it is distinct.

[0018]

[Effect of the Invention]This invention is melting or a semi molten state about molten-metal slag so that clearly also from the example of this invention, It pushes with a roller, a pressure is given, mixed stirring of the slag is carried out, and it makes it possible to ****** a slug-disposing process on the basis of promoting distributed coagulation and subdividing slag as compared with the former, and a cleanup cost is extremely reduced as reduction being extremely possible in the processing area.

[Translation done.]